

IN THE CLAIMS:

1. (Currently Amended) A data storage subsystem comprising:


a plurality of storage devices;

a storage controller coupled to said plurality of storage devices, wherein said storage controller is configured to store data in the form of stripes where each stripe includes a plurality of data blocks stored across said plurality of storage devices, wherein at least one of the plurality of data blocks is a redundancy data block, and wherein block verification information is associated with each of said plurality of data blocks;


wherein said storage controller is further configured to initialize a given stripe in response to detecting a mismatch in said block verification information associated with at least one data block of said given stripe;

wherein said storage controller is configured to initialize said given stripe by generating a corresponding redundancy data block for said given stripe based on at least an updated data block to be written to said given stripe.

2. (Currently Amended) The data storage subsystem as recited in Claim 1 wherein ~~said plurality of data blocks of each stripe includes a redundancy data block containing redundant data calculated with dependence upon other data blocks of said each stripe~~ said storage controller is configured to initialize said given stripe by reading one or more remaining data blocks of said given stripe and generating the corresponding redundancy data block for said given stripe based on the remaining data blocks and at least the updated data block.

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3. (Currently Amended) The data storage subsystem as recited in Claim [[2]] 1 wherein said redundancy data block contains parity data calculated from said other data blocks.
 4. (Currently Amended) The data storage subsystem as recited in Claim [[2]] 1 wherein said block verification information associated with a particular data block includes a code dependent upon data contained within said particular data block.
 5. (Original) The data storage subsystem as recited in Claim 4 wherein said code is an error detection code.
 6. (Original) The data storage subsystem as recited in Claim 5 wherein said error detection code is a cyclic redundancy check code.
 7. (Original) The data storage subsystem as recited in Claim 5 wherein said storage controller is configured to detect a mismatch in said block verification information by comparing a value contained in a field of said particular data block for storing said error detection code to a recomputed error detection code computed from data within said particular data block read from one of said storage devices.
 8. (Currently Amended) The data storage subsystem as recited in Claim [[2]] 1 wherein said block verification information associated with a particular data block includes an address associated with said particular data block.
 9. (Original) The data storage subsystem as recited in Claim 8 wherein said address is a logical block address for said particular block.
 10. (Original) The data storage subsystem as recited in Claim 9 wherein said storage controller is configured to detect a mismatch in said block verification information by comparing a value contained in a field of said particular data block for storing said logical

block address to an expected value of said logical block address for said particular data block read from one of said storage devices.

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11. (Original) The data storage subsystem as recited in Claim 8 wherein said block verification information of said particular data block further includes a code dependent upon data contained within said particular data block.
 12. (Original) The data storage subsystem as recited in Claim 11 wherein said code is an error detection code.
 13. (Original) The data storage subsystem as recited in Claim 12 wherein said error detection code is a cyclic redundancy check code.
 14. (Original) The data storage subsystem as recited in Claim 1 wherein each of said plurality of storage devices is a disk drive.
 15. (Original) The data storage subsystem of Claim 1 wherein said block verification information includes a block ID.
 16. (Original) The data storage subsystem of Claim 1 wherein said storage controller is configured to implement RAID 5 functionality.
 17. (Currently Amended) A data storage subsystem comprising:

a plurality of storage devices;

a storage controller coupled to said plurality of storage devices, wherein said storage controller is configured to store data in the form of stripes where each stripe includes a plurality of data blocks stored across said plurality of storage devices,

wherein at least one of the plurality of data blocks is a redundancy data block, and
wherein each data block includes block verification information;

wherein said storage controller is further configured to initialize a given stripe in response
to detecting a mismatch in said block verification information in at least two data
blocks of said given stripe;

wherein said storage controller is configured to initialize said given stripe by generating a
corresponding redundancy data block for said given stripe based on at least an
updated data block to be written to said given stripe.

18. (Currently Amended) The data storage subsystem as recited in Claim 17 wherein ~~said plurality of data blocks of each stripe includes a redundancy data block containing redundant data calculated with dependence upon other data blocks of said each stripe~~ said storage controller is configured to initialize said given stripe by reading one or more remaining data blocks of said given stripe and generating the corresponding redundancy data block for said given stripe based on the remaining data blocks and at least the updated data block.
19. (Currently Amended) The data storage subsystem as recited in Claim ~~[[18]]~~ 17 wherein said redundancy data block contains parity data calculated from said other data blocks.
20. (Currently Amended) The data storage subsystem as recited in Claim ~~[[18]]~~ 17 wherein said block verification information of a particular data block includes a code dependent upon data contained within said particular data block.
21. (Original) The data storage subsystem as recited in Claim 20 wherein said code is an error detection code.

22. (Original) The data storage subsystem as recited in Claim 21 wherein said error detection code is a cyclic redundancy check code.
23. (Original) The data storage subsystem as recited in Claim 21 wherein said storage controller is configured to detect a mismatch in said block verification information by comparing a value contained in a field of said particular data block for storing said error detection code to a recomputed error detection code computed from data within said particular data block read from one of said storage devices.
24. (Currently Amended) The data storage subsystem as recited in Claim ~~[[18]]~~ 17 wherein said block verification information of a particular data block includes an address associated with said particular data block.
25. (Original) The data storage subsystem as recited in Claim 24 wherein said address is a logical block address for said particular block.
26. (Original) The data storage subsystem as recited in Claim 25 wherein said storage controller is configured to detect a mismatch in said block verification information by comparing a value contained in a field of said particular data block for storing said logical block address to an expected value of said logical block address for said particular data block read from one of said storage devices.
27. (Currently Amended) A computer system comprising:
- a host; and
- a data storage subsystem coupled to said host, said data storage subsystem including:
- a plurality of storage devices;

a storage controller coupled to said plurality of storage devices, wherein said storage controller is configured to store data in the form of stripes where each stripe includes a plurality of data blocks stored across said plurality of storage devices, wherein at least one of the plurality of data blocks is a redundancy data block, and wherein block verification information is associated with each of said plurality of data blocks;

wherein said storage controller is further configured to initialize a given stripe in response to detecting a mismatch in said block verification information associated with at least one data block of said given stripe;

wherein said storage controller is configured to initialize said given stripe by generating a corresponding redundancy data block for said given stripe based on at least an updated data block to be written to said given stripe.

28. (Currently Amended) The computer system as recited in Claim 27 wherein ~~said plurality of data blocks of each stripe includes a redundancy data block containing redundant data calculated with dependence upon other data blocks of said each stripe~~ said storage controller is configured to initialize said given stripe by reading one or more remaining data blocks of said given stripe and generating the corresponding redundancy data block for said given stripe based on the remaining data blocks and at least the updated data block.
29. (Currently Amended) The computer system as recited in Claim ~~[[28]]~~ 27 wherein said redundancy data block contains parity data calculated from said other data blocks.
30. (Currently Amended) The computer system as recited in Claim ~~[[28]]~~ 27 wherein said block verification information associated with a particular data block includes an error detection code.

31. (Original) The computer system as recited in Claim 30 wherein said block verification information of a particular data block further comprises an address associated with said particular data block.

32 (Currently Amended) A method of operating a data storage subsystem comprising:

storing data in the form of stripes within a plurality of storage devices, where each stripe includes a plurality of data blocks stored across said plurality of storage devices, wherein at least one of the plurality of data blocks is a redundancy data block, and wherein block verification information is associated with each of said plurality of data blocks; and

initializing a given stripe in response to detecting a mismatch in said block verification information associated with at least one data block of said given stripe;

wherein said initializing said given stripe comprises generating a corresponding redundancy data block for said given stripe based on at least an updated data block to be written to said given stripe.

33. (Currently Amended) The method as recited in Claim 32 wherein ~~said plurality of data blocks of each stripe includes a redundancy data block containing redundant data calculated with dependence upon other data blocks of said each stripe~~ said initializing said given stripe comprises reading one or more remaining data blocks of said given stripe and generating the corresponding redundancy data block for said given stripe based on the remaining data blocks and at least the updated data block.

34. (Currently Amended) The method as recited in Claim ~~[[33]]~~ 32 wherein said redundancy data block contains parity data calculated from said other data blocks.

35. (Currently Amended) The method as recited in Claim ~~[[33]]~~ 32 wherein said block verification information of a particular data block includes an error detection code.
36. (Original) The method as recited in Claim 35 wherein said block verification information associated with said particular data block further includes an address associated with said particular data block.
37. (Currently Amended) The method as recited in Claim ~~[[33]]~~ 32 wherein said block verification information associated with a particular data block includes an address associated with said particular data block.
38. (Original) The method as recited in Claim 35 wherein said detecting said mismatch in said block verification information comprises comparing a value contained in a field of said particular data block for storing said error detection code to a recomputed error detection code computed from data within said particular data block read from one of said storage devices.
39. (Original) The method as recited in Claim 37 wherein said detecting said mismatch in said block verification information comprises comparing a value contained in a field of said particular data block for storing said address to an expected value of said address for said particular data block read from one of said storage devices.
40. (New) A method of operating a data storage subsystem comprising a plurality of storage devices, the method comprising:
- storing data in the form of stripes where each stripe includes a plurality of data blocks stored across said plurality of storage devices;
- initializing a subset of said stripes in said data storage subsystem;

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performing a partial write to at least one of said stripes of said subset; and

subsequent to performing the partial write to at least one of said stripes of said subset,
initializing one or more remaining stripes in said data storage subsystem.
